

QIAcube CONNECT FOR AUTOMATED DIFFERENTIAL WASHING

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In March 2019, the Jefferson Parish Sheriff's Office Regional DNA Laboratory purchased two QIAcube Connect instruments, with the intention of employing these instruments for use in automated separation and washing of samples undergoing differential extraction procedures. The QIAcube Connect instrument was available for purchase beginning January 2019. The predecessor of this QIAcube Connect instrument was the QIAcube, which has been used by forensic laboratories since 2009 for the separation of epithelial lysates and washing of sperm pellets. The advantages of such instrumentation have been previously presented and discussed, and employed four wash steps in two runs which proved to be efficient and effective at providing clean fractions of male contributor DNA even for samples containing an abundance of epithelial donor.

Given the newest instrument has a larger deck space, it is now possible to have a single continuous run for automated differential sample processing when employing a full rotor of twelve samples and using three wash steps, instead of four. In order to address the effectiveness of the continuous run protocol when only three washes are performed, mock differential samples were subjected to testing.

Data to support the three wash versus four wash QIAcube method as robust and reliable for forensic DNA casework will be presented. The study plan, quantification and STR data, and mixture separation efficiency will be included.